What is claimed is:

1. A method for isolating a double-stranded cDNA having a nucleotide sequence of a complete open reading frame which comprises:

A) admixing

(i) an isolated single-stranded cDNA,

(ii) a first primer capable of forming a stem-loop structure, comprising

(a) at the 3' end of the primer, a first random sequence, linked to

(b) a second sequence, linked to

(c) a third sequence which forms a loop structure, linked to

(d) a fourth sequence, at the 5' end of the first primer, which is complementary to the second sequence,

under hybridization conditions sufficient for annealing the first sequence of the first primer to the sequence at the 3' end of the single-stranded cDNA, and

(iii) a polymerase;

B) incubating the mixture from step (A) under suitable conditions for DNA synthesis; and

C) performing a polymerase chain reaction by admixing

(i) an aliquot of the mixture from (B),

(ii) a second primer which specifically binds to the single-stranded cDNA,

(iii) a third primer which comprises

(a) a fifth sequence identical to the third sequence of the first primer, linked to

(b) a sixth sequence identical to a portion of the second sequence of the first primer, and

(iv) a polymerase

under conditions suitable for a polymerase chain reaction so as to produce a double-stranded cDNA reaction product, thereby isolating the cDNA having the sequence of the complete open reading frame.

2. The method of claim 1, wherein the single-stranded DNA

is a 5' portion of a cDNA reverse transcribed from an mRNA.

3. The method of claim 1, wherein the first primer has the sequence

3'-NNNNNNNNNNNNCAGAGCTCAAATTTGTGATCAGCTGGTCTTTCACAAATTTGAGCTCTG-5' (D-SLAP).

4. The method of claim 1, wherein the first primer has the sequence

3'NNNNNNNNNNGGGAGAGCTCACAGCTGAAGCAGCTGACTAGCACCTAGTGTAGAATACATCTTGAGCTAT-5' (D-CLAP1).

5. The method of claim 1, wherein the first primer has the sequence

3'NNNNNNNNNNNNNAGAGCTCACAGCTGAAGCAGCTGACTAGCACCTAGTGTAGAATACATCTTGAGCTAT(D-CLAP2).

6. The method of claim 1, wherein the first primer comprises an inosine nucleotide.

7. The method of claim 1, wherein the loop structure is a simple loop structure, or a cloverleaf loop structure.

8. A method for generating a cDNA library which comprises:

A) admixing

(i) a population of single-stranded cDNA molecules which were reverse transcribed with an oligo-dT sequence linked to a defined nucleotide sequence,

(ii) a first primer capable of forming a stem-loop structure, comprising

(a) at the 3' end of the primer, a first random sequence linked to

(b) a second sequence, linked to

(c) a third sequence which forms a loop structure, linked to

(d) a fourth sequence, at the 5' end of the first primer, which is complementary to the second sequence,

under hybridization conditions sufficient for annealing the first sequence of the first primer to the sequence at the 3' end of the single-stranded cDNA, and

(iii) a polymerase;

B) incubating the mixture from step (A) under suitable conditions for DNA synthesis by the polymerase; and

C) performing a polymerase chain reaction by admixing

(i) an aliquot of the mixture from (B),

(ii) a second primer which has the identical sequence as the defined nucleotide sequence of the primer in (A)(i),

(iii) a third primer which comprises

(a) a fifth sequence identical to the third sequence of the first primer, linked to

(b) a sixth sequence identical to a portion of the second sequence of the first primer, and

(iv) a polymerase

under conditions suitable for a polymerase chain reaction so as to produce double-stranded cDNA reaction products thereby generating a cDNA library.

9. The method of claim 8, wherein the single-stranded DNA is a cDNA reverse transcribed from an mRNA.

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10. The method of claim 8, wherein the first primer has the sequence 3'-
NNNNNNNNNNNNCAGAGCTCAAATTTGTGATCAGCTGGTCTTTCACAAATTTG

AGCTCTG-5' (D-SLAP).

11. The method of claim 8, wherein the first primer has the sequence 3'NNNNNNNNNNGGGAGAGCTCACAGCTGAAGCAGCTGACTAGCACCTAGTGTAGAATACATCTTGAGCTAT-5' (D-CLAP1).

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12. The method of claim 8, wherein the first primer has the sequence 3'NNNNNNNNNNNNNAGAGCTCACAGCTGAAGCAGCTGACTAGCACCTAGTGTAGAATACATCTTGAGCTAT(D-CLAP2).

13. The method of claim 8, wherein the first primer comprises an inosine nucleotide.

14. The method of claim 8, wherein the loop structure is a simple loop structure, or a cloverleaf loop structure.

15. A kit for the generation of a complete open reading frame double-stranded cDNA of interest which comprises:

(i) a first primer capable of forming a stem-loop structure, comprising

(a) at the 3' end of the primer, a first random sequence linked to

(b) a second sequence, linked to

(c) a third sequence which forms a loop

structure, linked to

(d) a fourth sequence, at the 5' end of the first primer, which is complementary to the second sequence, and

(ii) a second primer which comprises

(a) a fifth sequence identical to the third sequence of the first primer, linked to

(b) a sixth sequence identical to a portion of the second sequence of the first primer.

16. A method for isolating a double-stranded cDNA having a nucleotide sequence of a complete open reading frame which comprises:

(a) admixing

(i) a biological sample containing mRNA,

(ii) a primer which forms a stem-loop structure, comprising:

(a) a poly-T sequence at the 3' end of the primer linked to

(b) a first random sequence linked to

(c) a second sequence which forms a loop

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structure linked to

(d) a third sequence at the 5' end of the primer which is complementary to the first sequence, and

(iii) a reverse transcriptase,

under hybridization conditions sufficient for annealing the primer to the mRNA poly-A sequence;

(b) incubating the mixture from step (a) under suitable conditions for reverse transcription;

(c) performing a polymerase chain reaction with an aliquot of the mixture from step (b) using one gene-specific primer which is pre-defined and one primer which has a sequence identical to at least a portion of the primer sequence of element (ii), thereby isolating the cDNA having the sequence of the complete open reading frame.

17. The method of claim 16, wherein the primer has the sequence 3'-TTTTTTTTTTTTCAGAGCTCAAATTTGTGATCAGCTGGTCTTTCACAAATTTG AGCTCTG-5'(T-SLAP).